

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is requested. Claims 16-20, 22-23, 25-27, and 31-50 are in this application. Claims 16-19, 22-23, 25-27, 31, 33, and 36-40 have been amended. Claims 1-15, 21, 24, and 28-30 have been cancelled. Claims 41-50 have been added to alternately and additionally claim the present invention.

Applicants' attorney has recently become aware of U.S. Patent No. 6,563,189 issued on May 13, 2003 to Dark et al., which has been included in an IDS that accompanies the present amendment. It is noted that U.S. Patent No. 6,563,189 was filed on June 6, 2001, while the present application was filed on January 8, 2002. It is also noted that U.S. Patent No. 6,563,189 and the present application are commonly owned by National Semiconductor Corporation.

The Examiner rejected claims 22-23 under 35 U.S.C. §102(b) as being anticipated by Vinal (U.S. Patent No. 5,525,822). For the reasons set forth below, applicant respectfully traverses these rejections.

Claim 22 has been amended and recites, in part,

"a metallic material that contacts the third doped region; and
"an insulation material having a bottom surface that contacts the metallic material, the insulation material being free of a side wall surface that contacts the metallic material at a plurality of different vertical distances away from the top surface of the third doped region."

In rejecting the claims, the Examiner pointed to n++ region 24 shown in FIG. 1 of Vinal as constituting the third doped region of claim 22. In addition, the Examiner pointed to electrode 32 shown in FIG. 1 of Vinal as constituting the metallic material of claim 22, and insulator 41 shown in FIG. 1 of Vinal as constituting the insulation material of claim 22.

The Vinal reference, however, fails to teach or suggest that the insulation material is free of a side wall surface that contacts the metallic material at a plurality

of different vertical distances away from the top surface of the third doped region as required by claim 22. As shown in FIG. 1 of Vinal, insulator 41 has a side wall surface that contacts electrode 32 at a number of different vertical distances away from the top surface of n++ region 24.

As a result, it is not possible for insulator 41 to be "free of a side wall surface that contacts the metallic material" as required by claim 22. Thus, claim 22 is not anticipated by the Vinal reference. In addition, since claim 23 depends from claim 22, claim 23 is not anticipated by the Vinal reference for the same reason as claim 22.

In addition, claims 16-19, 31, 33, and 36-40, which have been allowed, have been substantially amended to more precisely claim the present invention (e.g., to change the phrase "formed on" to "that contacts"), to more broadly claim the present invention (e.g., to recite alternate terms and remove the well), to maintain consistency (e.g., change the conductivity types), and to additionally claim the present invention (e.g., to add the limitation to claim 31 that no metallic region contacts the first and second doped regions).

Claims 22, 23, and 25-27 were also amended to more precisely claim the present invention (e.g., to change the phrase "formed on" to "that contacts"), to more broadly claim the present invention (e.g., to recite alternate terms and remove the well), to maintain consistency (e.g., change the conductivity types), and to additionally claim the present invention (e.g., to add the limitation to claim 22 that no region having the first conductivity type and a dopant concentration greater than the semiconductor material lies between the second and third doped regions).

The Examiner also objected to claims 25-27, but indicated that these claims would be allowable if amended to incorporate all of the limitations of the base claim and any intervening claims. Due to the amendments to claim 22, claims 25-27 have not been amended at this time.

With respect to new claim 41, this claim recites, in part,

"a metallic structure that contacts the top surface of the semiconductor material between the first doped region and the second doped region, the metallic structure having a top surface; and

"an insulation region that contacts all of the top surface of the metallic structure, the insulation region having a top surface."

If metallic layer 32 shown in FIG. 1 of Vinal is read to be the metallic structure of claim 41, then there appears to be no structure which can be read to be the insulation region required by claim 41. As a result, claim 41 is patentable over the Vinal reference. In addition, claims 42-50, which depend either directly or indirectly from claim 41, are patentable for the same reasons as claim 41.

Thus, for the foregoing reasons, it is submitted that all of the claims are in a condition for allowance. Therefore, the Examiner's early re-examination and reconsideration are respectively requested.

Respectfully submitted,

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